ECONOMICS OF OCEAN-DEPENDENT INDUSTRIES IN CALIFORNIA

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The California coastline includes a diverse group of ocean-dependent economies ranging from densely populated urban areas, such as Los Angeles in Southern California, to small rural communities, such as Bodega Bay in Northern California. These coastal economies all depend on the ocean to varying degrees. To fully evaluate policy and management options for California's ocean resources, the Resources Agency requested that the California Research Bureau, a division of the State Library, estimate the contribution selected ocean-dependent industries make to the California economy. This chapter summarizes the major findings in the Bureau's report and provides additional observations based on further review of the literature and other studies. The Bureau's complete economic analysis, which provides the assumptions, criteria and detailed findings of the study, is included as Appendix B.

INDUSTRIES STUDIED

There are many economic activities that depend to some degree on the ocean. However, the California Research Bureau (Bureau) focused its analysis only on those industries which could not exist without ocean access. These industries include:

- Commercial Fishing
- Mariculture
- Kelp Harvesting
- Offshore Oil and Gas
- Coastal Mineral Production
- Port Activities: Water Transportation, Ship/Boat Building and Repair
- Coastal Tourism and Recreation

SUMMARY OF FINDINGS

The Bureau's findings are based on a limited and conservative analysis of seven ocean-dependent industries in California. The analysis does not establish the value of ocean resources themselves; this would involve quantifying specific natural resource values, aesthetics, and recreational experiences which would necessitate a costly and time-consuming analysis. While this information would be useful, it is beyond the scope of this initial planning effort. Instead, this analysis is limited to helping better understand the contribution major ocean-dependent industries make to the California economy.

All numbers in the Bureau's report are from 1992, unless otherwise specified, reflecting a one-year analysis to allow general comparisons between industries and the State economy as a whole. The information presented in the report and this summary clearly demonstrates the substantial contribution and importance of ocean-dependent industries to the State's economy in 1992. The analysis also underscores the need for effective and efficient management of those ocean resources which help maintain these economies and the ocean ecosystem upon which they depend.

Market Value of Industries $17.3 Billion, Supporting 370,000 Jobs

The Bureau estimates that the seven ocean-dependent industries studied contributed $17.3 billion to the California economy in 1992, including both direct and indirect effects. Direct effects alone contributed just

over $10 billion, representing approximately 1.4% of the total gross state product in 1992. Relative to the gross product of other industries in California, this figure makes the seven ocean-dependent industries studied comparable to direct farm production.

The combined ocean-dependent commercial and recreational industries studied directly employ almost 150,000 people. About 82,000 individuals are employed by hotels, restaurants and associated recreational industries, while 67,000 are employed in ports, oil and gas extraction, fisheries and other commercial ocean activities. In addition to these 150,000 jobs, another 220,000 people are indirectly supported by spending from these ocean-dependent jobs. Thus, the ocean industries studied account for 370,000 jobs in California, including multiplier spending effects.

Tourism Spending Largest Economic Component. Of the $17.3 billion, the Bureau attributes $9.9 billion to coastal tourism spending in such industries as hotels and restaurants, and $7.4 billion to such industries as sea ports and ship building, commercial fishing, and oil and gas production. Defining coastal tourism as vacation travel and associated recreational activities, the Bureau found that such spending represents approximately 13% of the total travel and related activities in California for 1992. This number is consistent with a national survey which shows that approximately 14% of California tourism includes a primary activity at beach or waterfront areas (D.K. Shifflet & Associates 1994). This does not include tourists who also visit the coast as a secondary activity to their travels or California residents traveling less than 50 miles to the coast.

Tourism Spending Mostly Urban. The majority of coastal tourism and related spending is located in the three counties with the largest populations. San Diego County ranks first in spending at $1.7 billion, followed by San Francisco at $1.6 billion and Los Angeles at $1.5 billion, accounting for nearly 50 percent of all coastal tourism spending in the State.

Rural Counties Depend on Tourism Spending. While urban counties receive a large share of total California coastal tourism spending, this industry is also important to rural coastal counties. Rural economies, such as in Humboldt and Mendocino counties, depend more on tourism for jobs than large counties with a more diversified economic base.

Seaports and Ship Building Represent Second Largest Spending Component. California seaports are an important part of the State's infrastructure and economy, with an estimated $6.0 billion annual infusion into the State, directly and indirectly. Port activities include cargo documentation, shipping lines, storage services, marine insurance, and freight forwarding. Including indirect effects, water transportation of freight and passengers alone added $3.4 billion to the California economy. Ship and boat building and related activities added another $2.6 billion. Approximately 179,000 direct and indirect jobs were generated from port activities.

Offshore Oil, Gas and Mineral Production Contribute Over $860 Million. The offshore oil and gas industry employed 25,600 people in 1992 and contributed $852 million to the State economy, while mineral production, chiefly sand and salt, provided another $10 million.

Commercial Fishing, Mariculture and Kelp Harvesting Create Almost 17,000 Jobs. Some of the fisheries commercially important to California include tuna, sea urchin, rockfish, crab, and salmon. Commercial fishing, mariculture and kelp harvesting directly and indirectly contributed $554 million to the state's economy.

STUDY ASSUMPTIONS

Several important assumptions were made in the Bureau's study to produce the estimated contributions to California's economy. The discussion below identifies some economic valuation methods which could

have established even higher contributions, but which were beyond the scope of this analysis. These

methods should be considered for use in future efforts to quantify the value of ocean-dependent industry or ocean and coastal resources.

Ocean Access

The Bureau limited commercial activities studied to those that require or depend on ocean access. For example, oil refining occurs along the California coast, but access to the ocean is not required for refining operations and is therefore not included as an ocean-dependent industry. However, to extract oil from beneath ocean waters, production operations must have ocean access. Closely related activities, such as oil transportation from these locations, are also dependent upon ocean access. Other industries which are ocean-related, but not ocean-dependent, were not included in the study.

Data Availability and Mutually Exclusive Standard Industrial Codes

There are other ocean-dependent activities which contribute to California's economy but that were not included in the Bureau's analysis due to difficulty in measuring their impacts or separating coastal jobs from overall state jobs within standard industrial codes. Such activities include local coastal recreation and leisure travel (i.e., California residents traveling less than 50 miles to play at the beach or sport fish for the day); manufacturing of sail boats, surfboards, wind sails, wet suits, and other ocean recreation products; public infrastructure developed to support ocean and coastal activities; inland markets and restaurants specializing in the sale of fish products; and port administration.

Including these activities in future economic analyses may prove to be significant. Recreational saltwater fishing (both vacationing and non-vacationing) contributed $577 million or more to the State economy in 1992, based on a study conducted by the University of California at Berkeley (McWilliams and Goldman 1994). This estimate does not include expenditures on equipment and clothing, boat purchases and use, or recreational vehicle purchases and use. Another study conservatively estimates that Californians spent almost $3.4 billion on day trips to the beach during the 1994-95 beach season (Potepan 1996).

Market Value Estimates

The estimated value for ocean-dependent tourism is market value, the amount consumers actually pay for goods and services. This estimate represents the value measured by market transactions, not the total value of the ocean to consumers. The difference between the two is called consumer surplus and can be significant. For instance, through detailed survey research, a National Oceanic and Atmospheric Administration study estimates that just three Southern California beaches (Santa Monica, Leo Carillo, and the Cabrillo Pier/City of Long Beach area) have a value of almost $12.0 billion (Leeworthy and Wiley 1993). That is, Californians should be willing to pay almost $12.0 billion for the three beach resources, above and beyond current recreational expenditures. Estimating such non-market values, while considered controversial by some, is often used in determining the value of natural resources. Comparable studies reviewed by the Bureau also only considered market values.

In addition, the study does not include more elusive costs or benefits, such as the loss of wetland nurseries to the fishing industry, health costs resulting from swimming or surfing in polluted waters, and increased property values as more people desire to live closer to the coast. Since California is the most populous state in the nation and 80% of it's population lives within 30 miles of the coast (Griggs 1992), it is likely that the ocean plays a significant role in drawing people to California and in their decision of where to live. Determining this and other subjective non-market values is very difficult and beyond the scope of the Bureau's analysis. In some cases, such values may not be quantifiable.

Multiplier Spending

Though this study does not consider non-market values, it does include economic multiplier effects of ocean-dependent activities, using a 1980 input-output model which was updated in 1987 and adjusted in

1989. These are the effects in other industries and areas which result from the spending and jobs created in ocean-dependent industries. Because multipliers are included in the Bureau's analysis, the total values generated are not comparable to the industries comprising gross State product, as those figures do not include multiplier effects. For example, the total tourism figures include jobs in other sectors, such as automobile repair or food processing, created by the spending in tourism for food and transportation. Therefore it is only appropriate to compare the direct effects to gross product of other industries. In doing so, the direct economic impacts conservatively estimated for the seven ocean-dependent industries are comparable to direct farm production in California for 1992.

Vacation, Business/Convention and Other Leisure Travel

Travel and recreational spending presented particular analytical difficulties because the extent of ocean dependence is not a simple determination. For example, attending a business convention in San Francisco is not necessarily related to the ocean. Proximity to the ocean was probably one of several factors considered by the convention's sponsor in its location decision, but conventions can certainly take place at inland sites. For purposes of this analysis, the Bureau did not include the value of conventions or other business travel expenditures since data was not available to determine the degree to which such spending was dependent upon close proximity to the ocean.

Non-business travel spending is divided into “vacation” and “other” leisure travel, with other leisure travel being for purposes other than vacationing (such as visiting friends and family or attending to personal business). The Bureau only included vacation travel spending in estimating coastal tourism. The bias inherent in assuming that all business travel to coastal counties is not coastal-dependent is off-set by the Bureau's assumption that all vacation travel spending to coastal areas is ocean-dependent and by excluding other leisure travel. These assumptions were made because it is difficult to determine why tourists go to particular destinations and to what extent visits to friends and family or personal business would increase with the ocean’s proximity. For example, some tourists visit San Diego to go to the zoo or wild animal park, while others go to the beach or deep-sea fishing. Some people visit friends and family more often if the visit offers the opportunity to participate in ocean-related activities. Since these distinctions could not be made based on available data, other leisure travel to coastal areas was excluded from the analysis and it was assumed that all vacation travel to coastal locations is ocean-dependent.

CONCLUSIONS

The economic analysis conducted by the California Research Bureau represents the first known attempt to comprehensively quantify the contribution of selected ocean-dependent industries to the California economy. The analysis provides critical information to help define California's economic stake in ocean resource management. The conservatively estimated economic impact of *$17.3 billion* is impressive, with direct impacts alone contributing over $10 billion. This data underscores the importance of the ocean to California's economy.

California's ports and associated maritime industries were found to be major contributors ($6 billion annually) to California's economy. This is not surprising with three of the five largest ports in the United States located in California (Long Beach, Los Angeles and Oakland). Of particular interest, a major finding of the analysis is that coastal tourism contributed $9.9 billion to the State's economy both directly and indirectly. People enjoy the California coast for aesthetic, spiritual and recreational purposes such as fishing, scuba diving, sun bathing, surfing, picnicking, hiking, wildlife viewing and sightseeing. Conducted properly, such activities have minimal impacts upon the environment while contributing substantially to the economy. The activities themselves may not have direct commercial value, but they result in significant consumer expenditures on food, transportation, accommodations and other related goods and services. Most importantly, coastal tourism is dependent upon a clean and healthy ocean ecosystem.

These findings are testimony to the concept that *ongoing efforts to manage California's ocean resources in a sustainable manner will provide long-term economic, as well as environmental, benefits to the State.* In other words, ecosystem management and economic sustainability are not mutually exclusive goals. The State must continue to pursue efficient and effective processes for addressing the protection of ocean resources, while also addressing the legitimate needs of ocean-dependent industries.